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Perceived Barriers and Trends in HPV Vaccination Among Young Men in Newtown, CT

Newtown, CT, Family Medicine

Alexander Karabachev

October 2019 - November 2019

Project Mentor: Dr. Eureka Chang MD



The University of Vermont
LARNER COLLEGE OF MEDICINE

Problem Identification

- **Human Papillomavirus (HPV) is the most prevalent sexually transmitted infection in the United States.¹**
- **Although the HPV vaccine has been proven to be effective and safe, the vaccination rates are significantly less compared to other vaccines.²**
- **In men, HPV infection may lead to the development of numerous forms of cancer including oropharyngeal, anal and penile.³**

Cancer diagnoses related to HPV each year in the United States

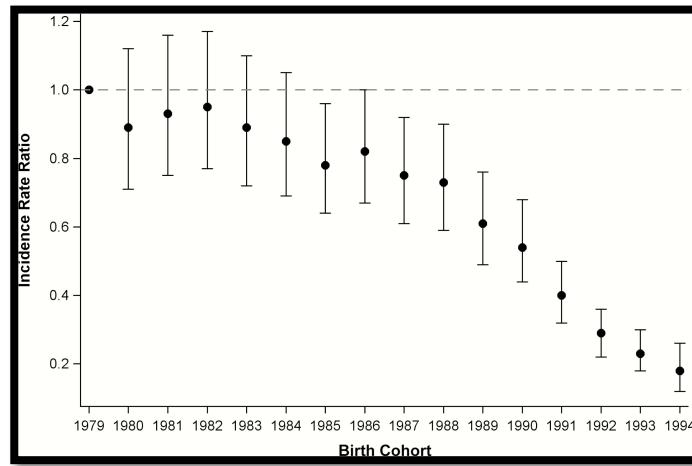
	Women	Men
Oropharyngeal	2,200	11,300
Cervical	10,900	0
Anal	4,200	2,000
Vulvar	2,800	0
Penile	0	800
Vaginal	600	0
Total	20,700	14,100

- **According to the 2019 CDC National Immunization Survey, adolescents 13-17 years old were up to date with:²**
 - **HPV Vaccination: Males (48.7%), Females (53.7%)**
 - **Tdap Vaccination: 88.9%**
 - **Varicella Vaccination: 90.8%**
 - **MMR Vaccination: 91.9%**
 - **Hep B Vaccination: 92.1%**



Problem Identification

- In 2016, sixty-nine NCI-Designed Cancer Centers determined that the low rate of HPV vaccination in the United States is a serious public health threat.⁴
- According to a report approved by the National Vaccine Advisory Committee in 2015, two significant barriers for HPV vaccination were weak and inconsistent provider recommendations and low parental demand.⁵
- The graph below demonstrates the relative change in incidence of high-grade cervical lesions by birth cohort 1980-1994 compared to 1979 in the state of Connecticut most likely due to HPV vaccination.⁶



- Similar studies have not been done with male HPV-related cancers in Connecticut.
- Due to the success of the HPV vaccine in the prevention of cervical cancer, men in the recommended age group should be advised to receive the vaccination to prevent oropharyngeal, anal and penile cancers.



Public Health Costs

- In the United States, the cost per HPV vaccination is estimated to be \$360-\$600 per person while the average cost of treatment for oropharyngeal cancer \$40,463.80.^{7,8}
- Connecticut's vaccination budget expanded to include the HPV vaccination for patients through the Connecticut Vaccine Program (CVP).
 - *“Beginning January 1, 2018, providers can order HPV vaccine for all 11 and 12 year old patients in their practice, including those with private insurance.” – Mick Boldue (Vaccine Coordinator – CVP)*
- In 2003, in the United States, the cost of new cases of mouth and oropharyngeal cancer related to HPV was estimated to be \$38.1 million (range, \$17.7-\$54 million).⁸
- The cost of the increase in HPV driven cancers in both males and females has been greatly underestimated and ignored in the United States and other countries around the world.⁹
 - One study in the United Kingdom demonstrated that the annual cost for HPV related oropharyngeal cancer is 80 million dollars while the cost to vaccinate every male would cost between 25-28 million dollars.⁹



Community Perspective

In order to gain a community perspective, I interviewed four medical providers at the Newtown Family Medicine Clinic in Newtown, CT about the barriers for HPV vaccination in males and discussed ideas for improvement with six other providers in the practice.

- **What do you believe are the major barriers for male patients to receive the HPV vaccination?**
 - “Many people do not know that HPV can affect males as well. It is important to educate families that the vaccine is best started before sexual activity and to ensure that they understand that getting the vaccine doesn’t imply that the child will start having sex soon” – Dr. Chang MD
 - “The misinformation on social media is a big barrier as well as the lack of knowledge of HPV risks and how it is spread. I think there is information that is misrepresented and manipulated against vaccination. The whole thing needs to be broken down and explained properly, including the science behind the new evidence, risks, rewards, links to cancer, etc.” – Hannah Fischetto - Medical Assistant
 - “One big challenge for males to get vaccinated is that many times their families believe that only females need it since males do not have a cervix therefore are not at risk for cervical cancer. It is important that males are educated on HPV related cancers in men and future prevention for their partners.” – Ms. Khuen – APRN
 - “Many parents do not understand how their son can get HPV and the role in transmission they may have” – Kathleen D’Orso APRN
- **Ideas on how to improve the understanding of the importance of HPV vaccination after speaking with multiple medical providers at Newtown Family Medicine.**
 - Many providers mentioned that a pamphlet to educate a parent before the HPV vaccination is advised would be very helpful and informative.
 - We discussed that making various resources available for patients including educational literature, YouTube advertisements and commercials would help more parents understand the importance of vaccination.



Intervention

- A survey was created and given to medical providers at Newtown Family Medicine to aid in understanding the perceived barriers to HPV vaccination in Newtown, CT, in order to create an appropriate brochure for the clinic.

HPV Vaccine Questionnaire

Medical Student Community Health Project


1. Most common reason parents deny HPV vaccine for their child:
 - a. Believe they are too young to get HPV
 - b. Think vaccine may be harmful
 - c. Believe the vaccine is only for females
 - d. Not enough evidence to support the benefits
 - e. Not enough time during the visit to discuss fully
 - f. Other: _____
2. What is your best estimate of the percentage of children/adolescents in Fairfield County that are vaccinated for HPV? (circle one)

Males: 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Females: 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
3. Do you believe this brochure that provides information regarding the HPV vaccine for both males and females will help families make an educated decision regarding vaccination of their child?
 - a. Yes
 - b. No
4. In your opinion, what is the biggest challenge in advising male patients about HPV vaccination and how do you think this can be improved? (optional)



Intervention

- With insight provided by the survey, a trifold brochure was designed using data provided by the CDC regarding HPV vaccination.
- The brochures were given to providers and patients as well as placed in rooms around the Newtown Family Medicine Clinic.



When Should My Child Get the HPV Vaccine?


Two doses of the HPV vaccine are recommended for all boys and girls at ages 11-12

Dose #1
11-12 years

Dose #2
6-12 months after the first dose

Recommended for everyone through age 26 years, if not vaccinated already

- If vaccines are started after age 15, three shots are given over six months




HPV Vaccination
Learn
Understand
Prevent

For more information:
www.cdc.gov/hpv/parents/vaccine.html
and ask your doctor


Visit
www.cdc.gov/hpv/parents/vaccine.html
and ask your doctor

HPV

A vaccine for males?



Prevent Human Papillomavirus (HPV) related cancers and diseases with vaccination



HPV Vaccination
Learn
Understand
Prevent

HPV Vaccination is very safe

"Ten years of research and monitoring have shown that the HPV vaccine is very safe and effective. Like all vaccines, there is ongoing monitoring to ensure it is safe and effective"
– CDC.gov

Reasons to Get Vaccinated

80% of people will get an HPV infection in their lifetime

- About 14 million Americans become infected with HPV each year

HPV vaccination prevents cancer

- HPV is estimated to cause nearly 35,000 cases of cancer in men and women each year in the US

HPV vaccination has proven to be safe and effective at providing long-lasting protection

- Over 100 million doses have been distributed in the United States with a proven safety record with over 10 years of monitoring

Boys can develop HPV cancers as adults

HPV does not only affect females. Approximately 4 out of 10 cases of cancer caused by HPV occur among men.

How many cancers are linked with HPV each year?

	Women	Men
Back of throat	2,200	11,300
Cervical	10,900	0
Anal	4,200	2,000
Vulvar	2,800	0
Penile	0	800
Vaginal	600	0
Total	20,700	14,100


HPV vaccination can prevent up to 90% of HPV


Vaccines protect your child before exposure to the disease. That is why it is recommended that your child is vaccinated earlier rather than later, long before they are exposed to HPV

POSSIBLE SIDE EFFECTS

- PAIN, REDNESS, OR SWELLING IN THE ARM
- DIZZINESS OR FAINTING
- NAUSEA
- HEADACHE

BENEFITS OF HPV VACCINATION FAR OUTWEIGH ANY POTENTIAL RISK OF SIDE EFFECTS





Learn the purpose of HPV Vaccination for your child
Understand its importance and safety
Prevent HPV related cancers and diseases

Information from this brochure can be found at:
www.cdc.gov/hpv/parents/vaccine.html

Results

- The HPV vaccination brochures were placed in the lobby and various rooms in the family medicine clinic for patients, parents and providers to read.
- 100% of the medical providers surveyed at the Newtown Family Medicine practice believe that the brochure will help families make an educated decision regarding HPV vaccination of their child.
- According to the medical providers at Newtown Family Medicine, the most common reasons parents deny HPV vaccination for their children are:
 - Believe they are too young to get HPV (5 medical providers)
 - Think the vaccine may be harmful (5 medical providers)
 - Believe the vaccine is only for females (2 medical providers)
 - Not enough evidence to support the benefits (0 medical providers)
 - Not enough time during the visit to discuss fully (0 medical providers)
- The perceived estimation of HPV vaccination vs. the actual proportion of children and adolescents vaccinated for HPV according to the survey done by 12 Newtown Family Medicine medical providers (medical assistant, MD, APRN, PA)

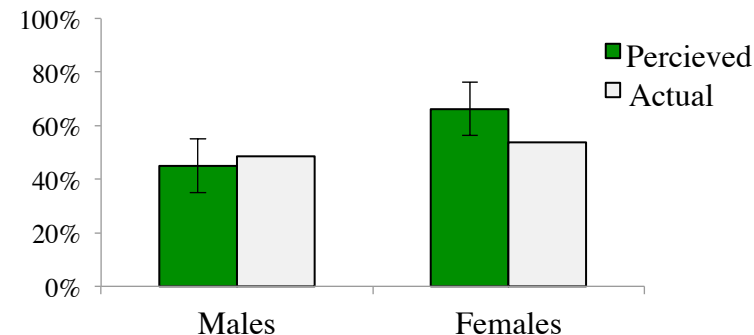
Results

Perceived Vaccination rates:

- Males: 44.4% \pm 17%
- Females: 66.7% \pm 10%

Actual Vaccination rates

- Males: 48.7%
- Females 53.7%



Conclusion

There is no significant difference between the perceived male vaccination rates and the actual value demonstrating that medical providers at Newtown Family Medicine have an accurate understanding on the under vaccination of male patients. However, the medical providers in the clinic overestimated the amount of females vaccinated for HPV on average by 13%.



Effectiveness and Limitations

- The effectiveness of this intervention will be determined in future months by the proportion of males receiving the HPV vaccine due to the information provided by the brochure.
- Future assessment of effectiveness
 - A survey to patients in the clinic regarding their perception of HPV vaccination for both males and females before and after reading the brochure.
 - A survey to providers to evaluate if they were more likely to speak with patients regarding HPV vaccination during the encounter if the brochure was in the room.
 - Determine if the presence of the brochure in the clinic, increased interest in HPV vaccination.
- Limitations of the project
 - The effectiveness of the brochure is dependent on its availability for patients.
 - Due to limited time constraints, follow up on the effectiveness of the brochure in the clinic could not be evaluated.
 - Patients may have strong beliefs toward HPV vaccination that may not change due to the information provided in the brochure.

Future Projects

- **Distribute brochures to other Family Medicine and Pediatric clinics in Fairfield County, CT.**
- **Compile data on the effectiveness of the brochure in increasing HPV vaccination rates in both male and female patients.**
- **Collect data regarding HPV-related cancers in males in Connecticut and determine if vaccination has led to a similar decrease seen in cervical cancer for females.**
- **Share the results of the survey with other providers in order to highlight common misconceptions and barriers to vaccinate children for HPV in Connecticut.**



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